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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/565,696	01/24/2006	Ryotaro Hayashi	SHIGA7.043APC	5533

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EXAMINER

HUHN, RICHARD A

ART UNIT	PAPER NUMBER
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4131

NOTIFICATION DATE	DELIVERY MODE
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09/22/2008

ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

jcartee@kmob.com
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Office Action Summary	Application No. 10/565,696	Applicant(s) HAYASHI ET AL.	
	Examiner RICHARD A. HUHN	Art Unit 4131	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 16 August 2007.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-14 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-14 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|----------------------------------------------------------------------------------------|-------------------------------------------------------------------|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>24 Jan 2006, 11 Dec 2006, 16 Aug 2007</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Specification

1. The title of the invention is not descriptive. A new title is required that is clearly indicative of the invention to which the claims are directed.

The following title is suggested: Cyclic aliphatic acrylic resins and compositions for lithographic positive resists.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 1-14 are rejected under 35 U.S.C. 103(a) as being unpatentable over US Patent No. 6,165,678.
4. As to claim 1: US '678 discloses a photoresist resin composition containing monomeric units containing monocyclic aliphatic groups as in structural units (a1-1) (see column 5, line 48 to column 6, line 26 for discussion; and column 8, lines 1 to 20. Col 8, line 9 discloses 1-methylcyclohexyl), and monomeric units containing methacrylic monocyclic lactones as in structural units (a2-1). (See column 6, line 27 to column 7, line 36 for discussion. See specifically the structure in column 7 line 5.)

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5. As to claim 2: US '678 additionally discloses monomeric units containing monocyclic aliphatic groups with an exocyclic alkyl group as in structural units (a1-2) (see column 8, lines 1 to 20. Line 9 discloses 1-methylcyclohexyl), and monomeric units containing methacrylic monocyclic lactones as in structural units (a2-1) (column 6, line 31 discloses lactones).

6. As to claim 3: US '678 additionally discloses monomeric units containing polar groups other than lactones, such as cyano groups as in structural units (a3). (See column 6, line 27 to column 7, line 29 for discussion. Line 27 discloses cyano.)

7. As to claim 4: US '678 additionally discloses monomeric units containing polycyclic aliphatic groups as in structural units (a4). (See column 8, lines 1 to 20. Line 7 discloses isobornyl, for example.)

8. As to claim 5: US '678 additionally discloses the inclusion of an acid generator and the inherent functional properties of positive resists regarding alkali solubility upon action of acid. (See column 4, lines 55 to 64. Line 64 discloses a photosensitive acid generator. See also column 9, lines 7 to 31 for several examples of PAGs.)

9. As to claim 6: US '678 additionally discloses the inclusion of nitrogen-containing bases such as amines. (See column 10, line 48 to column 11, line 13 for a large list of nitrogen-containing organic bases.)

10. As to claim 7: US '678 discloses the use of the well-established method of developing a positive resist by forming a film, exposing the film, and alkali-developing the resist (e.g., see column 15, example 7).

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11. As to claim 8: US '678 discloses methacrylic monomeric units containing monocyclic aliphatic groups as in structural units (a1-1-1) (see column 8, lines 1 to 20. Line 9 discloses 1-methylcyclohexyl), and monomeric units containing monocyclic or polycyclic lactones as in structural units (a2). (See column 6, line 27 to column 7, line 36 for discussion. See specifically the structure in column 7 line 5.)

12. As to claim 9: US '678 discloses methacrylic monomeric units containing monocyclic aliphatic groups with an exocyclic alkyl groups as in structural units (a1-2-1) (column 8, lines 1 to 20. Line 9 discloses 1-methylcyclohexyl), and monomeric units containing monocyclic or polycyclic lactones as in structural units (a2). (See column 6, line 27 to column 7, line 36 for discussion. See specifically the structure in column 7 line 5.)

13. As to claim 10: US '678 additionally discloses monomeric units containing polar groups other than lactones, such as cyano groups as in structural units (a3). (See column 6, line 27 to column 7, line 29 for discussion. Line 27 discloses cyano.)

14. As to claim 11: US '678 additionally discloses monomeric units containing polycyclic aliphatic groups as in structural units (a4). (See column 8, lines 1 to 20. Line 7 discloses isobornyl, for example.)

15. As to claim 12: US '678 additionally discloses the inclusion of an acid generator and the inherent functional properties of positive resists regarding alkali solubility upon action of acid. (See column 4, lines 55 to 64. Line 64 discloses a photosensitive acid generator. See also column 9, lines 7 to 31 for several examples of PAGs.)

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16. As to claim 13: US '678 additionally discloses the inclusion of nitrogen-containing bases. (See column 10, line 48 to column 11, line 13 for a large list of nitrogen-containing organic bases.)

17. As to claim 14: US '678 discloses the use of the well-established method of developing a positive resist by forming a film, exposing the film, and alkali-developing the resist (e.g., see column 15, example 7).

18. The prior art fails to disclose an anticipatory example, or specifically name the claimed compositions. However, each of the components of the compositions of claims 1-14 are described in the reference. Therefore, it would have been obvious to one of ordinary skill in the art to have made any of the compositions described by the reference, including the claimed composition.

Conclusion

19. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

a. US Patents Nos. 6,214,517, 6,291,129, 6,306,554, 6,579,658, and 6,673,511 and US Patent Appl. Pub. No. 2003/0099901 disclose monomers derived from cyclic aliphatic groups and lactones, and resist compositions.

b. US Patent Appls. Pub. Nos. 2002/0098443 and 2002/0193622, and Japanese Patent Appl. No. 2001-194776 disclose monomers derived from cyclic aliphatic groups and lactones, and resist compositions, with an emphasis on the inclusion of nitrogenous bases.

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c. US Patent Application Pub. No. 2002/0006576 discloses: monomeric units containing monocyclic aliphatic groups as in structural units (a1-1) (see paragraph 46) and monomeric units containing methacrylic monocyclic lactones as in structural units (a2-1) (see paragraph 42); copolymerization with polar group-containing monomers such as HEMA (see paragraphs 87 to 89); monomeric units containing polycyclic aliphatic groups as in structural units (a4) (see paragraphs 40 to 41 and 77); the inclusion of an acid generator and the inherent functional properties of positive resists (see paragraphs 26, 42, 47, and 54); and copolymerization with polar group-containing monomers such as HEMA (see paragraphs 87 to 89).

Any inquiry concerning this communication or earlier communications from the examiner should be directed to RICHARD A. HUHN whose telephone number is (571) 270-7345. The examiner can normally be reached on Monday to Friday, 7:30 AM to 5:00 PM EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Sample can be reached on (571) 272-1376. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/David R. Sample/
Supervisory Patent Examiner
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